



RIDEM

harmful algae bloom:
emergency shellfish closure

routine monitoring

- Collecting bacteria, phytoplankton samples 2x week in open areas
- Phytoplankton (April – Nov):
 - cell counts for potentially harmful taxa: *Alexandrium spp*, *Dinophysis spp*, *Pseudo-nitzschia spp*.
- To date: ~150 phytoplankton samples analyzed of HAB species



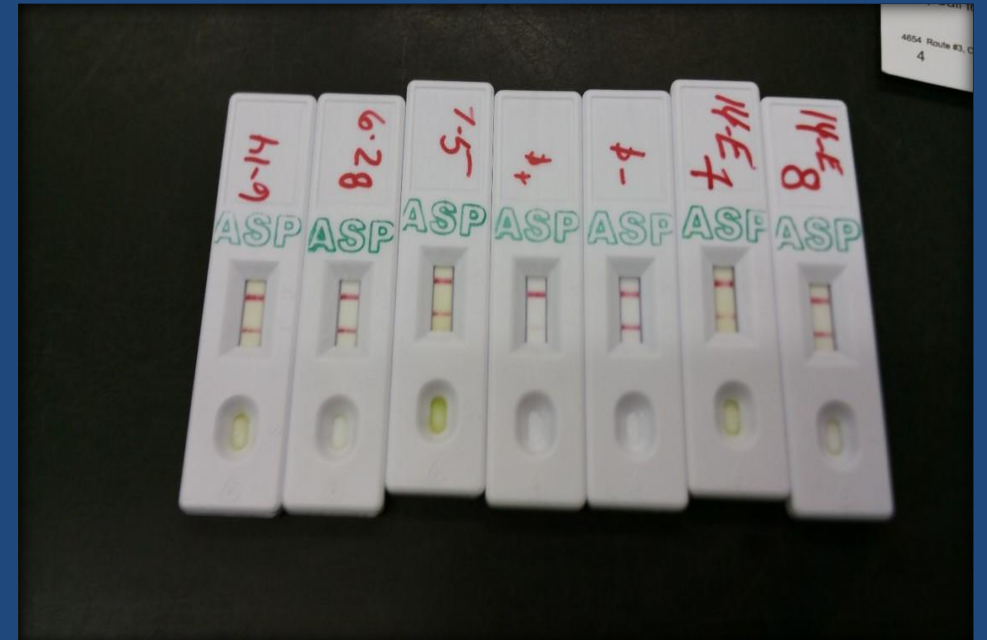


three-step detection approach

- Presence of HAB species in plankton (cell counts)
- Analysis of toxin in plankton
- Analysis of toxin in shellfish meats

10/16 closure risk: amnesic shellfish poisoning (ASP)

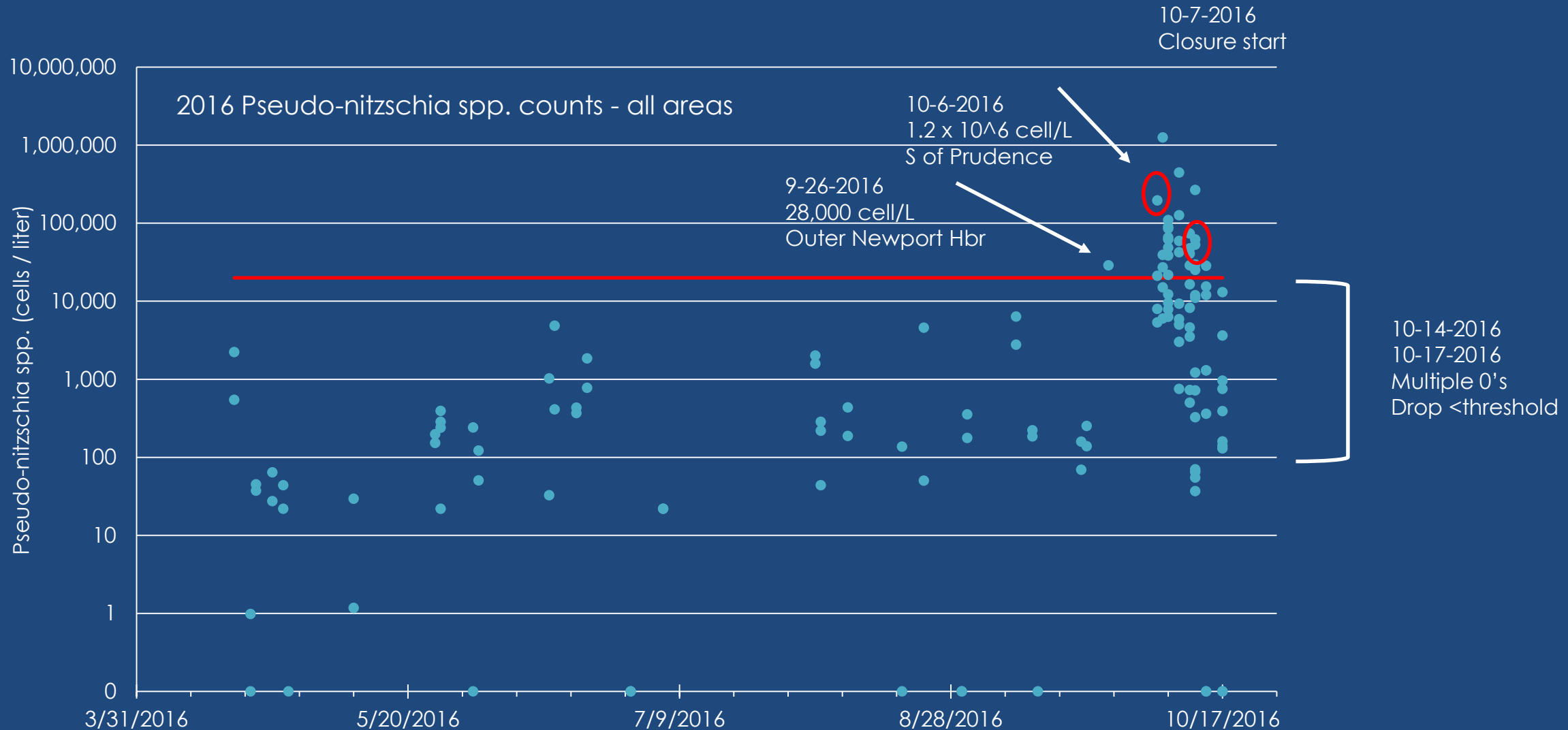
- Causative organism: *Pseudo-nitzschia* spp.
Pennate diatom (toxin: domoic acid)
- Not destroyed by cooking
- Symptoms: dizziness, memory loss, seizures, death
- Vectored through food web
- Impacts marine mammals, birds, humans



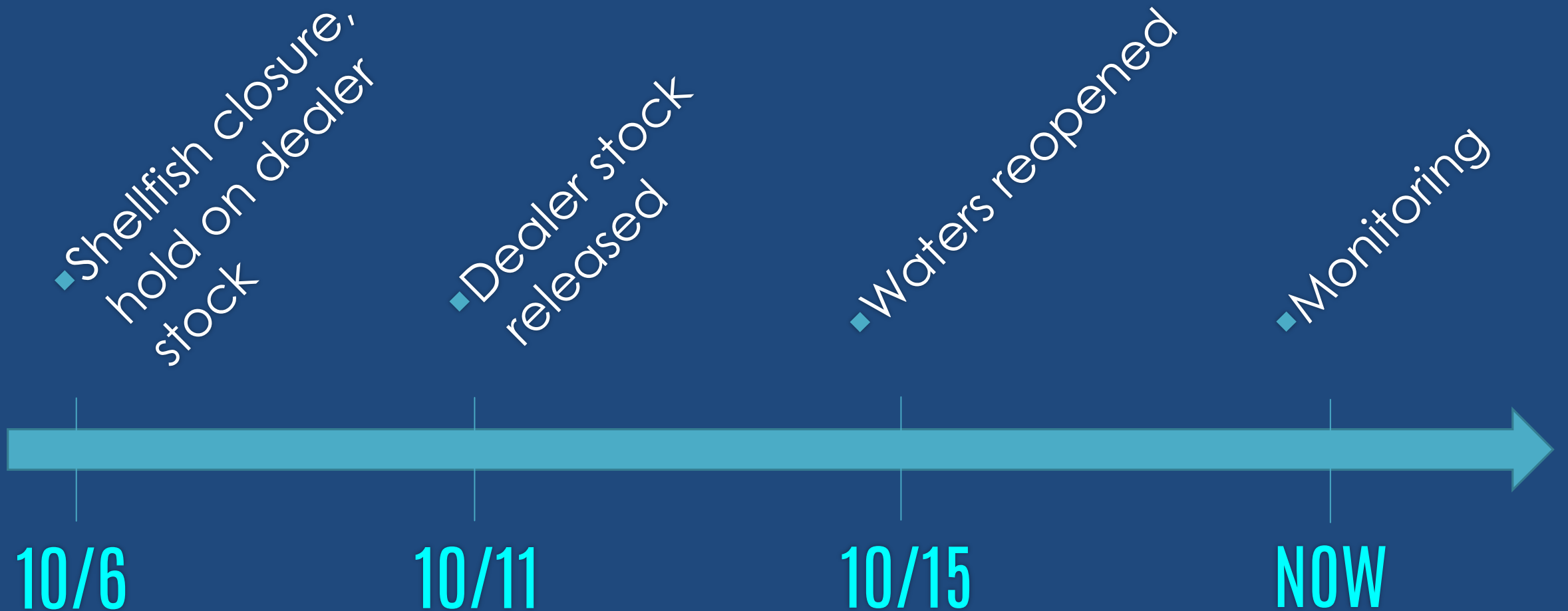
pseudo-nitzschia in R.I. waters

- May be present year-round in low numbers
- No strong seasonality
- Highest abundance (>10,000 cells/L)
 - During May-Nov (slight preference in Fall)
 - Water temperature greater than ~50°F (~10°C)
- Problem of species ID and toxicity on/off

2016 pseudo-nitzschia timeline

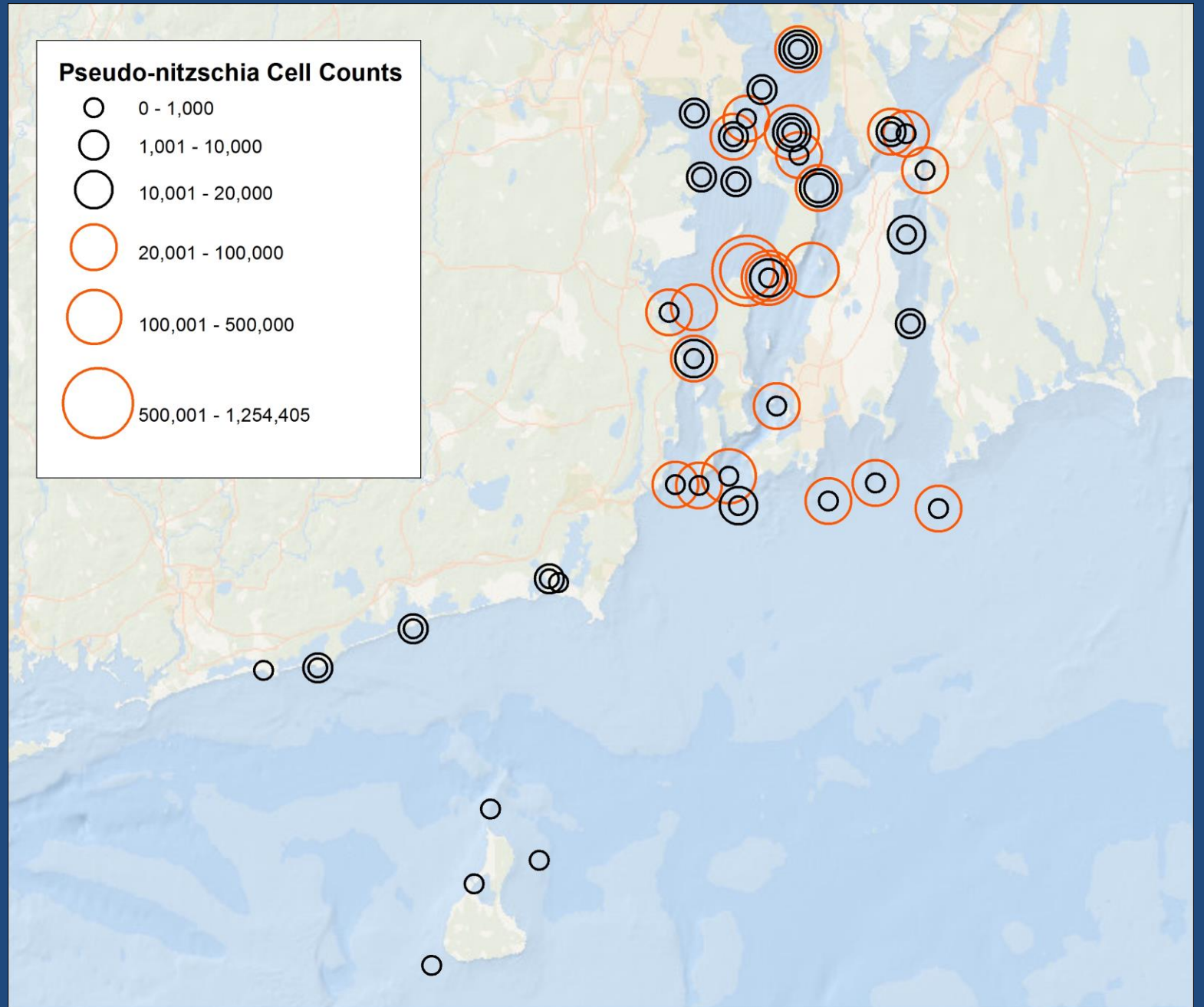


key actions taken



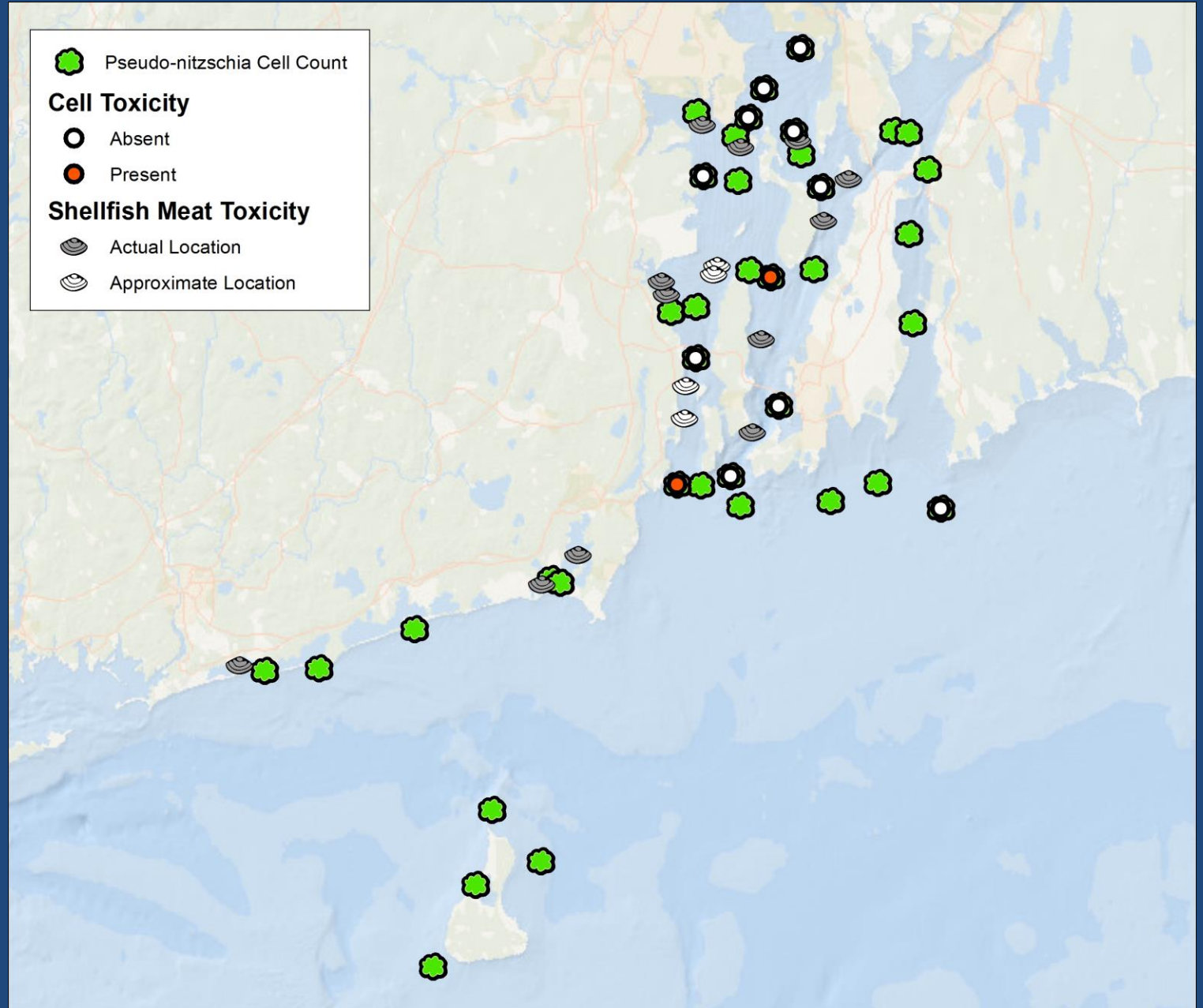
summary of cell counts

8 Plankton Surveys



summary of all data

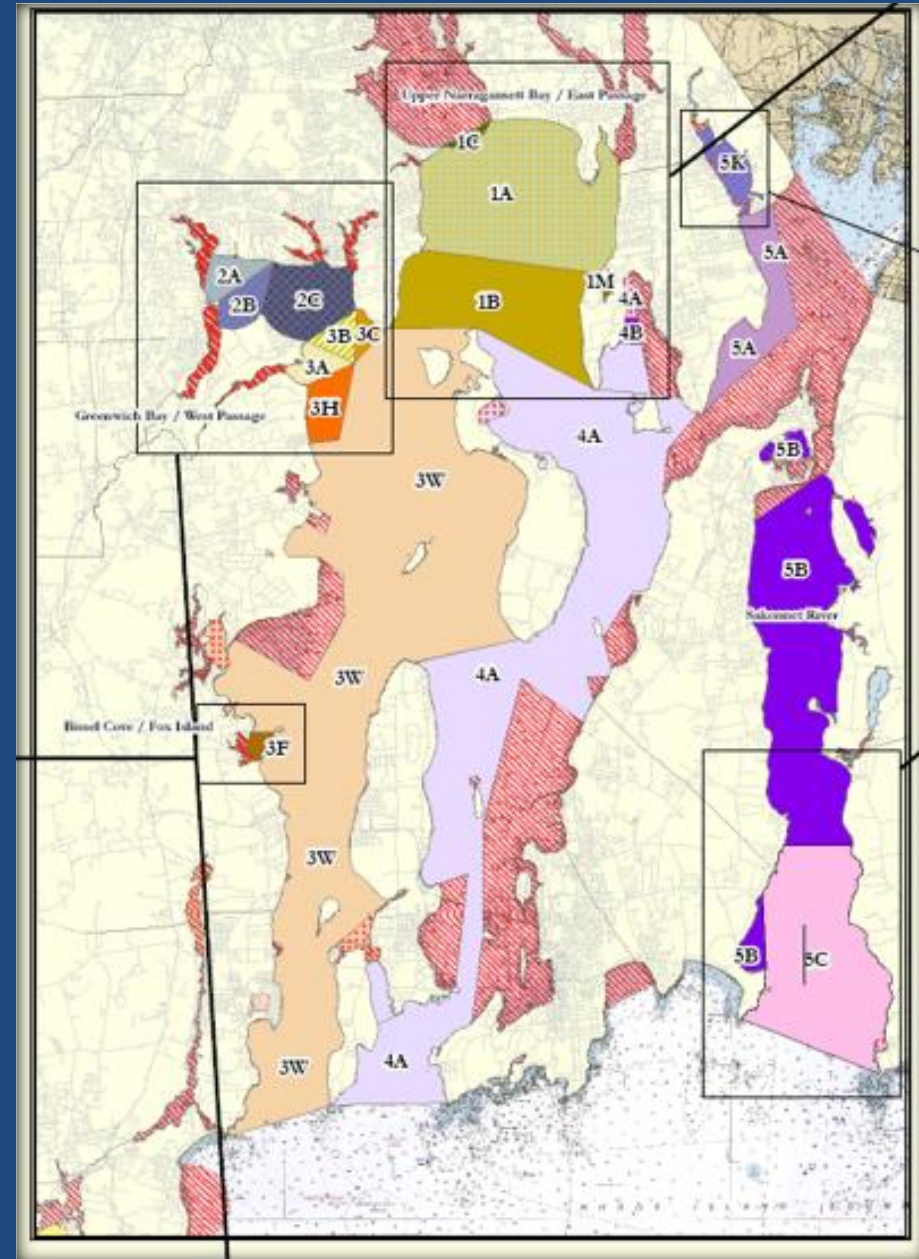
4 plankton toxicity surveys
5 shellfish toxicity surveys



sampling plan & potential outcomes

- **Goal:** plankton collection, toxicity screening across all shellfish areas at once: 2x week
- **Protocol:**
 - Positive plankton toxicity = shellfish toxicity screening
 - Positive shellfish screening = closure, domoic acid confirmation
 - Reopening based on domoic acid concentrations + cell counts

Tagging areas



staying informed

- Regular updates available via DEM Marine Fisheries Listserv:
rimarynefisheries-subscribe@listserve.ri.gov
- We need your help to get the word out!



thank you



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